CBS LABORATORIES

TECHNICAL BULLETIN

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CBS LABORATORIES
STAMFORD, CONNECTICUT
A DIVISION OF COLUMBIA
BROADCASTING SYSTEM, INC.

AUDIMAX® III SOLID-STATE AUTOMATIC LEVEL CONTROL

FEATURING:

SOLID-STATE CIRCUITRY
GATED GAIN STABILIZATION
RETURN-TO-ZERO FUNCTION
MONOPHONIC OR MPX OPERATION

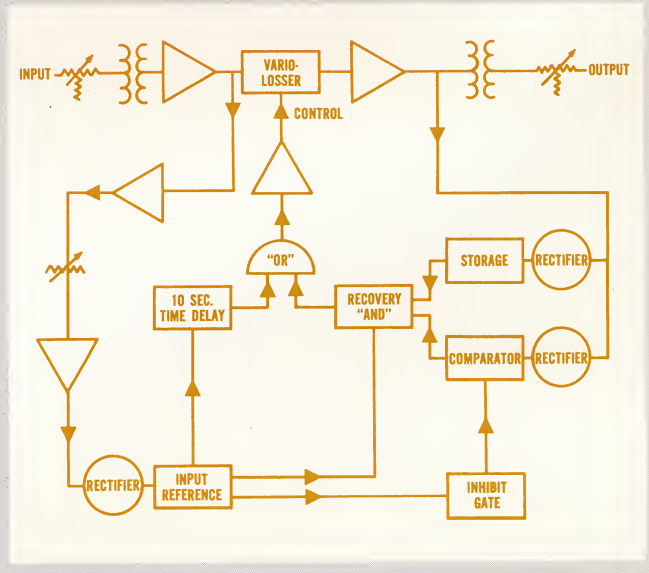
CBS LABORATORIES

AUDIMAX III SOLID-STATE AUTOMATIC LEVEL CONTROL

Unconditionally guaranteed to outperform ordinary compressors, limiters or AGC's, the new solid-state Audimax III offers the ultimate in automated gain control combined with the extreme reliability of solid-state circuitry. Only CBS Laboratories can offer the combination of experience gained through working with computer logic circuits, NASA quality and assembly techniques, and the vast CBS broadcasting complex for field testing.

The exclusive **Gain Platform** principle permits gain to remain on a stable plateau over a wide range of input levels rather than continuously allowing it to rise and fall with consequent distortion, thumping and pumping, and audio "holes." Its unique **Gated Gain Stabilizer** acts to bridge through program lapses and thus eliminate "swish-up" of background noise. A special **Return-to-Zero** function returns gain to normal during standby conditions.

These Audimax principles apply not only to radio and television stations, but also are necessary in recording, public address, background music, and two-way communication systems as well.



AUTOMATIC GAIN RIDING— the Gain Platform

Audimax solid-state logic circuitry monitors the incoming signal and compares it with its memory of average program content over a preceding period of time. This is a four-dimensional activity (input level, output level, memory, time). Figure 1 is a two-dimensional representation. For instance, when input levels fall within the limits A and B, Audimax maintains constant gain, as shown on the Gain Platform C-D. If input becomes higher than B, Audimax quickly and inaudibly lowers the gain without thumping. When level is lower than A, Audimax raises the gain without pumping. With explosive sounds such as pistol shots and sudden audience reaction, Audimax adapts the gain without leaving "holes." It is this ability to maintain stable gain at changing reference levels that makes Audimax unique.

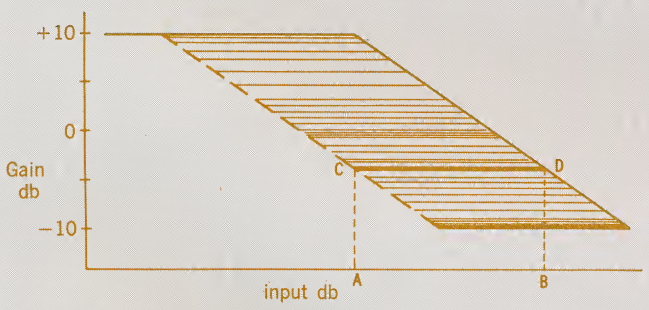


Figure 1: The gain platform principle

GATED GAIN STABILIZATION

The Gated Gain Stabilizer is a special feature of Audimax. This utilizes logic circuitry to answer the question: "During a prolonged pause in the program, should the gain be turned up?" This is of the utmost importance in motion picture and television work where the naturalness of background effects must be preserved. By maintaining constant gain during these pauses, the Gated Gain Stabilizer bridges program lapses and thus eliminates the fade-out of background effects or the "swish-up" of background noise.

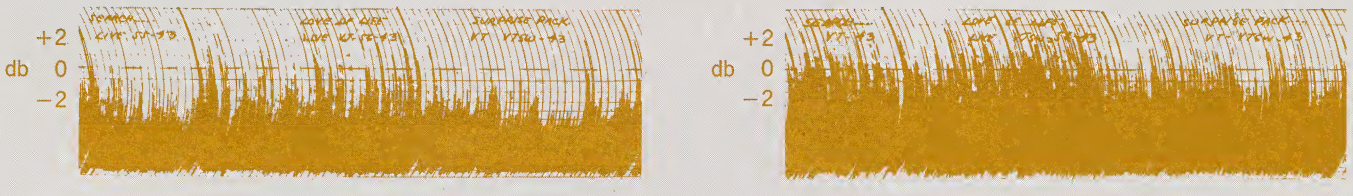
RETURN-TO-ZERO FUNCTION

This is still another special feature of Audimax. Whenever standby conditions occur, Audimax waits about 10 seconds while keeping the gain steady at the last correct setting. Then, when its memory unit is convinced that the program has ended, it slowly returns to normal gain thus retaining background effects at natural levels. With this unique feature, Audimax is in position to instantly provide the proper level upon resumption of the program.

INCREASED MODULATION and MARKET COVERAGE

While performing its control functions automatically, Audimax boosts overall levels. Figure 2 shows a comparison test of two similar one-hour programming segments. The left chart is a VU meter recording of the programming when skilled manual level control was used; the right chart represents programming with the Audimax. The average modulation with the Audimax increased by 6 db, a 300% increase in radiated program power—which represents a quadrupling of the potential market coverage. Over a thousand radio and television stations are now using Audimax, the standard of excellence in automated audio control.

Figure 2:
Operating experience without (left) and with (right) the Audimax automatic level control.



Specifications
AUDIMAX III SOLID-STATE AUTOMATIC LEVEL CONTROL

AUDIMAX III
Model 444

Frequency Response	Flat within 1 db, from 50 to 15,000 cps
Harmonic Distortion	Less than 1% from 50 to 15,000 cps at + 16 dbm output
Noise Level	Below −60 dbm at normal gain
Control Characteristic	±10 db of gain control
Gated Gain Stabilizer	Threshold adjustable from −24 db to normal input
Return-to-Zero Function	Returns gain to normal during pauses greater than 10 seconds
Maximum Gain	50 db
Input and Output Impedance	600 ohms, balanced or unbalanced (150 ohms optional)
Normal Output Level	+11vu
Maximum Output	+25 dbm
Minimum Input Level	−30vu
Physical Dimensions	Standard 19″ rack mounting, 3½″ high, 9⅝″ deep
Power Requirements	15 watts at 115/230 volts AC, 50/60 cps
Shipping Weight	17 lbs.

AUDIMAX III S
(For Stereophonic Operation)
Model 445

Consists of two Audimax III instruments, as specified above, that are physically and electronically coupled to provide simultaneous gain control in both channels. The Gain Control in Audimax III S is a function of the stereophonic sum signal (L+R), thus preserving spatial perspective and preventing undesirable "ping-pong" effects.

Physical Dimensions	Standard 19″ rack mounting, 7″ high, 9⅝″ deep
Shipping weight	34 lbs.

For further information, please call or write the Professional Products Department—

CBS LABORATORIES
Stamford, Connecticut
A Division of Columbia Broadcasting System, Inc.